

**Florida peninsula.**—Cedar Keys, 17th, 18th; Saint Augustine and Limona, 8th; Archer, 8th, 9th, 18th; Newport, 2d, 3d, 4th, 8th, 9th, 18th, 19th, 27th.

**East Gulf states.**—2d to 5th, 8th, 9th, 10th, 13th, 17th to 20th, 22d to 30th.

**West Gulf states.**—1st, 2d, 3d, 7th to 13th, 16th to 22d, 25th to 29th.

**Rio Grande valley.**—Brownsville, Texas, 1st; Rio Grande City, Texas, 2d, 26th.

**Tennessee.**—1st to 4th, 10th, 13th, 16th to 30th.

**Ohio valley.**—1st to 5th, 8th, 9th, 10th, 13th, 14th, 19th to 24th, 26th, 30th, 31st.

**Lower lake region.**—1st to 5th, 8th, 9th, 10th, 13th, 14th, 20th to 23d, 28th to 31st.

**Upper lake region.**—1st to 31st.

**Extreme northwest.**—1st to 31st.

**Upper Mississippi valley.**—1st to 31st.

**Missouri valley.**—1st to 31st.

**Northern slope.**—1st to 7th, 9th to 31st.

**Middle slope.**—1st to 31st.

**Southern slope.**—1st, 2d, 6th, 7th, 8th, 12th, 19th, 20th, 25th, 26th, 28th to 31st.

**Southern plateau.**—1st to 31st.

**Middle plateau.**—1st, 2d, 3d, 6th to 9th, 12th to 16th, 20th to 31st.

**Northern plateau.**—9th, 11th to 15th, 18th to 28th, 31st.

**North Pacific coast region.**—1st, 2d, 8th to 17th, 19th to 28th.

**Middle Pacific coast region.**—3d, 4th, 11th, 12th, 14th, 15th, 17th to 26th.

**South Pacific coast region.**—3d to 7th, 13th, 15th to 22d, 24th, 25th, 26th, 30th, 31st.

#### ICE.

Ice formed in the southern parts of the country as follows:

**Arizona.**—Wickenburg, 1st, 16th, 24th to 27th, 30th.

**California.**—Poway, 3d.

**Florida.**—Jacksonville, 18th.

**Georgia.**—Milledgeville, 26th, 27th; Athens, 3d; Atlanta, 23d, 24th; Savannah, 3d, 18th.

**Louisiana.**—New Orleans, 2d, 17th, 18th.

**North Carolina.**—Lincolnton, 24th; Wilmington, 2d; New River Inlet, 3d, 18th, 19th, 21st, 23d, 27th; Portsmouth, 23d.

**Texas.**—Galveston, 1st, 2d, 17th; Indianola, 1st, 2d, 16th, 17th, 18th, 21st; Brownsville, 2d, 17th; Rio Grande City, 2d, 16th; Fort Stockton, 1st, 2d.

#### PRECIPITATION.

[Expressed in inches and hundredths.]

The distribution of rainfall over the United States and Canada, for the month of January, 1885, as determined from reports from more than seven hundred stations, is exhibited on chart iii.

In the extreme northwest, the central Missouri and lower Arkansas valleys, the Rocky mountain districts, and on the Pacific coast, the precipitation has been below the January average. In these districts the deficiencies have been small, except on the Pacific coast, where they ranged from 1.00 in southern California to 3.50 in Oregon and Washington Territory. In the southern slope, West Gulf states, and in all districts east of the Mississippi river, the precipitation has been in excess of the average; in the more northerly of these districts, the departures have been small, but in the Gulf states, central Ohio valley, and in the western portions of Virginia and the Carolinas, they have varied from 2.00 to 7.00, the greatest excess occurring in the Gulf states. In the table of miscellaneous data will be found the monthly rain-falls as reported from the Signal Service stations, with the departures from the normal.

In the following table are shown, for each of the geographical districts, as deduced from Signal Service observations, the average January precipitation for a series of years;

the average for January, 1885, and the departures from the normal.

#### Average precipitation for January, 1885.

Districts.	Average for Jan. Signal-Service observations.		Comparison of Jan., 1885, with the av- erage for sev- eral years.
	For sev- eral years.	For 1885.	
	<i>Inches.</i>	<i>Inches</i>	<i>Inches.</i>
New England.....	3.90	4.56	+0.66
Middle Atlantic states.....	3.93	4.41	+0.48
South Atlantic states.....	4.90	6.73	+1.77
Florida peninsula.....	3.61	5.41	+1.77
Eastern Gulf states.....	5.84	9.15	+3.31
Western Gulf states.....	3.94	7.13	+3.19
Rio Grande valley.....	1.68	3.12	+1.44
Tennessee.....	6.23	7.25	+1.02
Ohio valley.....	3.45	4.45	+1.00
Lower lake region.....	2.68	2.72	+0.04
Upper lake region.....	1.86	2.74	+0.88
Extreme northwest.....	0.64	0.40	-0.24
Upper Mississippi valley.....	1.79	2.00	+0.21
Missouri valley.....	0.09	0.54	+0.45
Northern slope.....	0.97	0.80	-0.17
Middle slope.....	0.39	0.33	-0.06
Southern slope.....	0.67	0.83	+0.16
Southern plateau.....	0.74	0.13	-0.61
Middle plateau.....	1.31	1.13	+0.18
Northern plateau.....	2.84	2.00	-0.84
North Pacific coast region.....	8.10	4.60	-3.50
Middle Pacific coast region.....	5.02	2.18	-2.84
South Pacific coast region.....	1.47	0.47	-1.00
Mount Washington, N. H.....	4.14	5.49	+1.35
Pike's Peak, Colo.....	1.61	0.60	-1.01

#### DEVIATIONS FROM AVERAGE PRECIPITATION.

The departures exhibited by reports from the regular Signal Service stations are shown in the table of averages for the several districts and in the table of miscellaneous meteorological data. The following notes in connection with this subject are reported by voluntary observers:

**Arkansas.**—Lead Hill, Boone county: monthly precipitation, 2.65, is about the January average for the last three years.

**Illinois.**—Anna, Union county: monthly precipitation, 4.64, is 0.96 in excess of the January average for the last ten years.

**Sycamore, DeKalb county:** monthly precipitation, 2.66, is 1.27 above the January average for the three preceding years.

**Riley, McHenry county:** monthly precipitation, 2.32, is 0.52 above the January for the last twenty-four years.

**Indiana.**—Vevay, Switzerland county: monthly precipitation, 5.45, is 1.40 above the January average for the last twenty years.

**Logansport, Cass county:** monthly precipitation, 2.01, is 0.05 below the January average for the last twenty-six years.

**Wabash, Wabash county:** monthly precipitation, 2.68, is 0.91 above the January average for the last nine years.

**Spiceland, Henry county:** monthly precipitation, 4.00, is 1.10 above the January average for the last twenty-six years.

**Kansas.**—Lawrence, Douglas county: monthly precipitation, 1.66, is 0.46 above the January average for the last seventeen years.

**Wellington, Sumner county:** monthly precipitation, 1.20, is 0.56 above the January average for the last seven years.

**Independence, Montgomery county:** monthly precipitation, 2.12, is 0.53 above the January average for the last thirteen years.

**Maine.**—Gardiner, Kennebec county: monthly precipitation, 5.26, is 1.94 in excess of the January average for the last forty-nine years.

**Maryland.**—Fallston, Harford county: monthly precipitation, 4.65, is 1.03 above the January average for the last fourteen years.

**Cumberland, Allegheny county:** monthly precipitation, 3.80, is 1.76 above the January average for the last twelve years.

**Massachusetts.**—Worcester, Worcester county: monthly precipitation, 5.01, is 1.24 above the January average for a period of forty-seven years; the monthly snowfall, 16.1 inches, is about one-half inch more than the January average.

**Missouri.**—Saint Louis: monthly precipitation, 3.56, is 1.39 above the January average.

**New Hampshire.**—Contoocook, Merrimack county: monthly precipitation, 5.30, is 3.00 above the January average.

**New Jersey.**—South Orange, Essex county: monthly precipitation is 3.80, the average for January during the last fifteen years being 3.85.

**New York.**—Palermo, Oswego county: monthly precipitation, 3.40, is 0.20 above the January average for the last thirty-two years.

**North Volney,** Oswego county: monthly precipitation is 3.15, the average for January for the last thirteen years being 3.17.

**Ohio.**—Wauseon, Fulton county: monthly precipitation, 3.32, is 1.17 above the January average for the last fifteen years; the monthly snowfall, 22.3 inches, is more than double the January average.

**Pennsylvania.**—Dyberry, Wayne county: monthly precipitation, 4.52, is 1.58 above the January average for the last sixteen years.

**Virginia.**—Variety Mills, Nelson county: monthly precipitation, 4.43, is 0.29 above the January average for the last six years.

**Wytheville,** Wythe county: monthly precipitation, 3.83, is 0.27 in excess of the average for a period of twenty years.

**Vermont.**—Woodstock, Windsor county: monthly precipitation, 4.42, is 1.30 above the January average for the last sixteen years.

**West Virginia.**—Helvetia, Randolph county: monthly precipitation, 5.90, is 0.30 above the January average for the last nine years.

#### SNOW.

The dates on which snow fell in the various districts, are as follows:

**New England.**—1st, 3d, 4th, 8th, 9th, 13th, 15th, 16th, 17th, 21st, 24th to 31st; Mount Washington, New Hampshire, 1st 7th, 9th to 12th, 14th to 19th, 21st, 24th to 31st.

**Middle Atlantic states.**—1st, 2d, 4th, 7th, 8th, 10th, 13th, 15th, 16th, 17th, 23d to 28th, 31st.

**South Atlantic states.**—2d, 3d, 4th, 11th, 14th, 17th, 19th, 20th, 21st, 23d, 25th, 26th.

**East Gulf states.**—Birmingham, Alabama, 17th; Pensacola, Florida, 23d.

**West Gulf states.**—Palestine, Texas, 16th, 19th, 20th; Shreveport, Louisiana, 16th, 20th; Fort Smith, Arkansas, 3d, 16th; Liberty Hill, Louisiana, 16th, 20th; Cleburne, Texas, 2d, 16th, 20th.

**Tennessee.**—1st, 3d, 4th, 6th, 16th, 17th, 25th, 27th, 28th.

**Ohio valley.**—1st, 7th, 13th, 15th, 16th, 17th, 19th, 21st to 31st.

**Lower lake region.**—1st, 2d, 3d, 7th to 19th, 21st to 31st.

**Upper lake region.**—1st to 9th, 11th to 31st.

**Extreme northwest.**—2d, to 8th, 10th, 11th, 13th, 15th, 19th, 20th, 21st, 23d to 31st.

**Upper Mississippi valley.**—1st, 2d, 5th, 6th, 11th, 12th, 14th to 20th, 22d to 31st.

**Missouri valley.**—5th, 6th, 11th to 19th, 22d, 23d, 24th, 26th, 27th, 28th.

**Northern slope.**—1st, 3d, 4th, 5th, 8th, 10th to 19th, 21st, 23d to 29th.

**Middle slope.**—5th, 11th, 12th, 14th, 15th, 17th, 18th, 19th, 22d, 23d, 24th, 29th.

**Southern slope.**—2d, 4th, 15th, 16th, 18th to 23d.

**Southern plateau.**—3d, 4th, 5th, 10th, 14th, 15th, 19th, 23d, 24th, 30th.

**Middle plateau.**—2d, 3d, 5th, 9th, 10th, 11th, 13th, 14th, 15th, 17th, 18th, 19th, 23d, 24th, 30th.

**Northern plateau.**—1st, 2d, 3d, 9th, 10th, 11th, 13th, 16th, 17th, 18th, 21st, 29th.

**North Pacific coast region.**—13th, 16th, 17th.

The following notes relate to the severest snow-storms of the month.

Bozeman, Montana, 2d: reports from the various stock ranges on the 2d stated that the snow in some places was more than two feet deep on the level, and that cattle were starving. In the Yellowstone region the snow was reported to be of great depth.

Fort Canby, Washington Territory, 8th: the weather during the past three weeks has been the severest ever experienced in the Columbia valley and throughout Oregon and Washington Territory; no trains arrived from the east from December 16th until this date.

The observer at Spokane Falls, Washington Territory, reports that the first through train since December 16th arrived on January 8th.

Dubuque, Iowa: trains from the west were delayed by the snow-storm on the 6th; on the 12th no trains arrived in consequence of the heavy snow-fall of the 11th; the severest snow-storm of the season began during the early morning of the 16th and continued without interruption until 9.15 p. m. The drifting of the snow caused delay of east-bound trains from three to eight hours. The Illinois Central railroad was completely blocked with snow beyond Waterloo, and travel was suspended; on the 17th all trains were late.

Davenport, Iowa: snow fell on the 14th, 15th, and 16th; that on the last named date was the heaviest of the season and caused serious interruption to railroad travel; freight trains were discontinued, and passenger trains were run with difficulty; on the 17th all trains were from one to five hours late, and experienced much difficulty in making trips.

Grand Haven, Michigan: all trains which arrived on the 16th were delayed by snow-drifts; the high winds on the 17th caused the snow to drift badly, delaying trains from five to seven hours. Interruption to railroad travel continued on the 18th.

Chicago, Illinois: trains from all points arrived from two to three hours late on the 16th on account of snow-drifts.

Peoria, Peoria county, Illinois: the snow-storm of the 16th was one of the most severe that has occurred for several years, and caused serious interruption to railroad traffic.

Hillsborough, Montgomery county, Illinois: a severe snow-storm prevailed on the 16th; the ground was covered to a depth of nearly two feet; considerable loss of stock was reported.

Quincy, Adams county, Illinois: snow fell to a depth of one foot on the 16th; all trains were delayed from three to eight hours.

Shelbyville, Shelby county, Indiana: a severe snow-storm prevailed on the 15th and 16th, blockading railroads.

Kankakee, Kankakee county, Illinois: snow was two feet deep at this place on the 28th: many trains were detained, being unable to leave on account of obstructed tracks.

Pana, Christian county, Illinois: on the 28th snow was twenty inches deep on the level and in places the drifts covered the fences; all railway trains were delayed and some accidents resulted; much suffering was experienced by live-stock of all kinds.

Poughkeepsie, New York: a heavy snow-storm prevailed in this region on the 28th; the snow drifted badly and caused delay of railway trains.

Pittsburg, Pennsylvania: on the 26th trains from the west arrived from four to seven hours late.

Troy, New York, 28th; more than one foot of snow fell on the 28th, and in many places it drifted to depths of several feet; all trains were late; many were abandoned.

The following is from the "New York Herald" of January 30th, 1885:

PORTLAND, OREGON, January 28th, 1885.—During the past six weeks heavy storm have prevailed throughout eastern Oregon and Washington Territory, and the loss of live stock is reported as very heavy. The latest reports from the settled regions east of the Cascades are that large numbers of persons froze to death during the late cold and protracted snow-storm. A number of persons during the continuance of the storm are known to have wandered off and perished. Most of the bodies of such persons have been recovered since the snow disappeared. It is reported that many persons are still missing, and it is supposed that they have perished.

#### MONTHLY SNOW-FALLS.

[Expressed in inches and tenths.]

Monthly snow-falls of 3 inches or more were reported from the various states and territories during the month as follows:

*California*.—Cisco, 23.0; Truckee, 18.0; Emigrant Gap, 14.5; Summit, 14.0; Boca, 10.0.

*Colorado*.—Pike's Peak, 6.8; West Las Animas, 6.2; Denver, 4.7; Fort Collins, 4.1; Pueblo, 3.5.

*Connecticut*.—North Colebrook, 15.0; Hartford, 13.0; New London and Norfolk, 9.7; Southington, 9.0; Wallingford, 8.5; Voluntown, 8.0; Bethel, 7.3; Middletown, 7.0; New Haven, 5.9.

*Dakota*.—Richardton, 12.0; Deadwood, 9.9; Fort Buford, 8.2; Fort Totten, 3.0.

*Idaho*.—Boisé City, 9.2; Lewiston, 3.9.

*Illinois*.—Chicago, 20.2; Pana, 20.0; Greenville and Edgington, 19.5; Sandwich, 18.2; Griggsville, 17.6; Wilton Centre, 17.0; Peoria, 16.0; Springfield, 15.6; Sycamore, 15.0; Aurora, 14.8; Riley, 14.7; McLeansborough, 14.5; Mattoon and Mascoutah, 11.9; Anna, 11.6; Rockford, 11.3; Swanwick, 11.0; Marengo, 9.3; Centralia, 8.5.

*Indiana*.—La Grange, 32.5; Romney, 27.0; Logansport, 25.2; Noblesville, 23.0; Wabash, 22.8; Attica, 22.0; Monticello, 21.0; Fort Wayne, 20.5; Miami, 18.0; Lafayette, 17.3; Crawfordsville and Angola, 15.0; Terre Haute, 14.5; Greencastle, 13.8; Farmland, 11.5; Worthington, 11.0; Indianapolis, 10.4; Richmond, 10.2; Bloomington and Connersville, 10.0; Spiceland, 9.6; Greenfield, 9.0; Columbus and Princeton, 8.0; Knightstown, 7.5; Salem and Washington, 7.2; Sunman, 6.8; Degonia Springs, 6.5; Mauzy, 6.2; Franklin, 6.0; Vevay, 5.1; Marengo, 4.0.

*Iowa*.—Ottumwa, 27.0; Muscatine, 22.7; West Union, 21.9; Keokuk, 19.6; Oskaloosa, 18.0; Davenport, 16.9; Humboldt, 16.2; Independence, 15.8; Cedar Rapids, 15.0; Des Moines, 13 to 14; Indianola, 13.8; Round Grove, 12.0; Dubuque, 10.9; Cresco, 7.0; Monticello, 5.4.

*Kansas*.—Fort Scott, 17.8; Wyandotte, 13.2; Holton, 12.2; Independence, 11.8; West Leavenworth, 8.6; Leavenworth, 8.3; Elk Falls, Lawrence, and Maud, 8.0; Wellington, 7.0; Atchison, 6.6; Topeka, 6.0; Clay Center, 5.5; Emporia, 4.5; Allison, 3.1.

*Kentucky*.—Richmond, 5.0.

*Maine*.—Orono, 31.0; Portland, 24.5; Gardiner, 22.5; Cornish, 22.0; Waterville, 19.3; Eastport, 8.7.

*Maryland*.—Cumberland, 4.0; Fallston, 3.0.

*Massachusetts*.—Rowe, 20.0; Williamstown, 19.0; Lowell, 18.5; Lawrence, 18.0; Worcester, 16.1; Fitchburg, 16.0; Petersham and Leicester, 14.0; Westborough, 12.5; Princeton and Amherst, 12.0; Springfield and Monson, 11.0; Milton, 10.0; Concord, 8.0; Fall River, 7.5; Kingston, 7.0; Taunton, 6.5; Dudley, 5.3; Framingham, 4.0; Boston, 3.9; Provincetown, 3.7; Somerset, 3.2.

*Michigan*.—Traverse City, 36.5; Northport, 28.2; Thornville, 27.0; Harrisonville, 26.8; Mottville, 25.0; Hillsdale, 23.0; Grand Haven, 21.7; Swartz Creek, 20.8; Manistique, 20.4; Ionia, 19.6; Alpena, 19.5; Moorestown, 19.0; Ann Arbor, 16.5; Lansing, 14.8; Detroit, 14.0; Escanaba, 10.8; Hudson, 10.1; Mackinaw City, 9.6; Port Huron, 8.6.

*Minnesota*.—Chester, 10.0; Northfield and Duluth, 5.2; Saint Vincent and Minneapolis, 3.9; Saint Paul, 3.5.

*Missouri*.—Curryville, 16.5; Saint Louis, 10.5; Independence, Pierce City, and Springfield, 8.0; Conception, 6.0.

*Montana*.—Fort Shaw, 18.7; Fort Custer, 14.2; Fort Benton, 13.1; Helena, 12.2; Fort Maginnis, 11.8; Fort Assinaboine, 4.1.

*Nebraska*.—Tecumseh, 13.0; Red Willow and Genoa, 10.0; Harvard, 6.8; De Soto, 6.0; Yutan, 5.0; Omaha, 3.7; Beaver Creek, 3.6; Fremont, 3.3.

*Nevada*.—Otego, 14.5; Toano and Palisade, 10.0; Wells, 8.5; Winnemucca, 7.8; Tecoma and Battle Mountain, 5.5; Brown's, 5.2; Beowawe and Carlin, 5.0; Elko, Wadsworth and Hot Springs, 4.0.

*New Hampshire*.—Concord, 21.0; Grafton, 20.0; Contoocook, 19.0; Hanover, 18.5; Mount Washington, 16.2.

*New Jersey*.—South Orange, 7.0; Paterson, 6.0; Readington, 5.0; Somerville, 4.6; Phillipsburg, 4.5.

*New Mexico*.—Puerto de Luna, 3.8.

*New York*.—Auburn, 31.0; Palermo, 29.2; Rochester, 22.2; Menand station (near Albany), 17.4; Albany, 16.8; Buffalo, 16.0; Penn Yan, 15.0; Cooperstown, 14.5; Le Roy, 13.8; Factoryville, 11.5; Oswego, 11.2; Ithaca, 11.0; Mountainville, 10.0; White Plains, 9.0; New York City, 4.6.

*North Carolina*.—Brevard, 3.2.

*Ohio*.—Sandusky, 23.2; Wauseon, 22.3; Toledo, 21.2; Garrettsville, 20.0; Ruggles, 17.0; Hiram, 14.5; Tiffin, 13.4; North Lewisburg, 13.0; Cleveland, 11.5; Cincinnati and Westerville, 5.6; Portsmouth, 5.5; College Hill, 5.0.

*Pennsylvania*.—Erie, 14.4; Wellsboro, 10.8; Blooming Grove, Dyberry, and Easton, 10.0; Chambersburg, 9.0; Leetsdale, 8.2; Catawissa, 8.1; Troy, 8.0; Tamaqua, 7.0; Pittsburg, 6.4; West Chester and South Bethlehem, 5.2; Germantown, 4.2; Haverford, 3.5; Fallsington, 3.4.

*Rhode Island*.—Providence, 9.5; Pawtucket, 8.2; Nyatt Point, 4.4.

*Texas*.—Fort Concho, 3.8.

*Utah*.—Salt Lake City, 13.8; Corinne, 13.5; Nephi, 9.2; Blue Creek, 6.5; Kelton, 5.0; Promontory, 3.2.

*Vermont*.—Strafford, 32.0; Woodstock, 28.9; Lunenburg, 27.0; Newport, 25.2; Burlington, 22.0; Dorset, 21.5; Charlotte, 14.0.

*Washington Territory*.—Spokane Falls, 15.6; Dayton, 14.7; Tacoma, 5.5.

*West Virginia*.—Helvetia, 8.2.

*Wisconsin*.—Franklin, 32.0; Embarras, 16.2; Madison, 12.7; Sussex, 11.0; Lancaster and Beloit, 10.4; Prairie du Chien, 9.5; La Crosse, 9.1; Wausau, 8.2; Neillsville, 6.2.

#### DEPTH OF UNMELTED SNOW ON GROUND AT END OF THE MONTH.

[Expressed in inches and tenths.]

*Arkansas*.—Lead Hill, trace.

*Colorado*.—Pikes' Peak, 1.0.

*Connecticut*.—Hartford, 7.5; New London, 3.0; Southington and Bethel, 2.0; New Haven, 1.6.

*Dakota*.—Vermilion, 12.0; Richardton, 8.0; Fort Buford, 7.5; Fort Totten, 5.0; Deadwood, 4.3; Huron, 2.0; Fort Bennett, 0.3; Yankton, 0.2.

*Idaho*.—Boisé City, 11.5.

*Illinois*.—Chicago, 14.8; Springfield and Wilton Centre, 13.0; Aurora, Peoria, Riley, and Sandwich, 12.0; Marengo, Sycamore, and Griggsville, 8.0; Mascoutah, 7.0; McLeansborough and Mattoon, 4.0; Anna, 3.0; Collinsville, 2.5; Swanwick and Centralia, 2.0.

*Indiana*.—La Grange, 32.5; Wabash, 16.0; La Fayette, 10.0; Logansport, 8.5; Spiceland, 7.0; Sunman, 2.0; Fort Wayne, 10.

*Iowa*.—Humboldt, 25.0; Cresco, 20.0; West Union, 18.0; Keokuk, and Muscatine, 15.0; Cedar Rapids, 14.0; Independence, 12.0; Manchester, 10.0; Guttenberg and Indianola, 8.0; Des Moines, 6.8; Monticello and Round Grove, 6.0; Dubuque, 5.0; Davenport, 2.5.

*Kansas*.—Fort Scott and Elk Falls, 5.0; Wyandotte and Holton, 4.0; Allison, 3.0; Independence, 2.0; Leavenworth, 1.0; Dodge City, Topeka and Wellington, trace.

*Maine*.—Orono, 28.0; Waterville, 19.3; Portland, 18.0; Gardiner, 17.0; Eastport, 6.0.

*Maryland*.—Cumberland, 2.0; Baltimore and Woodstock, trace.

*Massachusetts*.—Deerfield, 15.0; Rowe and Williamstown, 14.0; Amherst, 12.0; Worcester and Leicester, 10.0; Boston, 6.5; Westborough, 6.0; Milton, 5.0; Somerset, 3.0; Taunton, 2.5; Fall River, 2.0; Princeton and New Bedford, 1.0.

*Michigan*.—Traverse City, 30.0; Manistique, 26.0; Grand Haven, 21.0; Thornville, 20.0; Moorestown, 19.0; Swartz Creek, 18.0; Hillsdale, 16.0; Ionia, 14.0; Ann Arbor, 13.0; Hudson, 12.0; Mackinaw City, 11.0; Port Huron, 6.5; Alpena, Escanaba and Detroit, 6.0; Northport, 3.8.

*Minnesota*.—Chester, 24.0; Northfield, 12.0; Saint Vincent, 10.0; Duluth, 8.0; Saint Paul, 5.0; Moorhead, 0.5.

**Missouri.**—Independence, 6.0; Curryville, 5.5; Saint Louis, trace.

**Montana.**—Fort Maginnis, 6.7; Fort Custer, 3.0; Fort Assinaboine, 1.0; Helena, 0.5.

**Nebraska.**—Beaver Creek, 10.0; Yutan, 6.0; Tecumseh, 4.0; DeSoto, 3.0; Madison, 2.0; Stockham and Omaha, 0.5; Marquette, trace.

**New Hampshire.**—Contoocook, 15.0; Mount Washington, 12.0

**New Jersey.**—Paterson, 4.0, Somerville, South Orange, and Readington, 1.0; Moorestown, trace.

**New Mexico.**—Santa Fé, 24.0 on mountains, and 3.0 in valleys.

**New York.**—Auburn and Palermo, 15.0; Albany, 12.0; Oswego, and Menand station (near Albany) 11.0; Penn Yan, 10.0; Rochester, 9.5; LeRoy and Cooperstown, 8.0; Factoryville, 6.0; Buffalo, 5.0; White Plains and Mountainville, 4.0; Ithaca, 3.0.

**North Carolina.**—Lincolnton, trace.

**Ohio.**—Wauseon, 19.0; Toledo, 16.0; Hiram, 12.5; Ruggles, 12.0; Tiffin, 9.0; Garrettsville, 8.0; North Lewisburg, 7.0; New Athens, 5.0; Cleveland, 4.0; Sandusky, 3.0; Westerville, 2.0; Cincinnati and Columbus, trace.

**Pennsylvania.**—South Bethlehem, 6.5; Troy and Dyberry, 6.0; Wellsboro and Erie, 4.0; Catawissa, 3.0; West Chester, 1.5; Chambersburg, 1.2; Pittsburg, 1.0; Haverford, 0.8.

**Rhode Island.**—Point Judith, 1.0.

**Utah.**—Salt Lake City, trace to 6.0; Nephi, 2.5.

**Vermont.**—Strafford, 24.0; Woodstock, 18.0; Dorset, 16.0; Charlotte, 12.0; Burlington, 10.0.

**Virginia.**—Wytheville, trace.

**West Virginia.**—Helvetia, 0.5.

**Washington Territory.**—Spokane Falls, 3.0.

**Wisconsin.**—Embarras, 22.0; Wausau, 18.0; La Crosse, 14.0; Neillsville, 13.0; Lancaster, 11.0; Madison, 9.0; Sussex, 6.0.

## SLEET.

**Alabama.**—Birmingham, 23d.

**Arizona.**—Fort Bowie, 30th.

**Arkansas.**—Fort Smith, 15th, 22d, 23d.

**Connecticut.**—North Colebrook, 16th; New Haven and New London, 28th.

**Dakota.**—Fort Sully, 5th; Webster, 31st.

**District of Columbia.**—Washington City, 1st, 15th.

**Florida.**—Pensacola, 23d.

**Georgia.**—Milledgeville, 3d, 23d; Athens, 4th; Atlanta, 3d, 23d; Augusta, 23d.

**Illinois.**—Swanwick, 15th; Cairo, 23d; Mattoon, 30th.

**Indiana.**—Spiceland, 15th; Greencastle and Indianapolis, 15th, 16th; Laconia, Vevay, Jeffersonville, and Sunman, 16th.

**Iowa.**—Davenport, 6th, 11th; Independence and Humboldt, 23d.

**Kansas.**—Salina and Leavenworth, 14th; Topeka, 30th.

**Kentucky.**—Frankfort, 16th; Louisville, 16th, 23d.

**Louisiana.**—Point Pleasant, 22d; Shreveport, 19th, 20th; Liberty Hill, 23d.

**Maine.**—Portland, 1st, 6th, 16th, 17th.

**Maryland.**—Baltimore, 1st, 4th, 15th, 23d, 24th; Emmitsburg, 15th.

**Massachusetts.**—Somerset and Boston, 15th, 24th; Thatcher's Island, 24th.

**Mississippi.**—Vicksburg, 20th.

**Missouri.**—Saint Louis, 14th, 15th, 16th.

**Montana.**—Fort Maginnis, 4th.

**Nebraska.**—Omaha, 5th.

**New Hampshire.**—Mount Washington, 6th, 17th.

**New Jersey.**—Little Egg Harbor, Sandy Hook and Atlantic City, 4th; Barnegat City, 23d.

**New York.**—Oswego, 1st, 7th to 10th, 12th, 25th; Buffalo, 16th; Albany, 16th, 24th; New York City, 24th; Rochester, 25th.

Table of excessive, and greatest monthly precipitation—January, 1885.

Station.	Specially heavy.		Largest monthly.	Station.	Specially heavy.		Largest monthly.
	Date.	Amt.			Date.	Amt.	
<b>Alabama.</b>				<b>Ohio.</b>			
Clintonville.....	5	3.07	12.32	Pomeroy.....	15, 16	2.66	6.73
Do.....	23, 24, 25	7.12		Portsmouth.....	14, 15, 16	2.97	6.41
Mount Willing.....	10	3.00	12.05	Marietta.....	15, 16	3.37	6.22
Do.....	23, 24	5.50		Cincinnati.....	15, 16	2.05	
Mobile.....	5	3.32	11.92	New Bremen.....	11	3.00	
Do.....	23, 24	4.35		Quaker City.....	15, 16	2.31	
Clanton.....	10	2.12	9.59	Gambier.....	24, 25	2.14	
Do.....	23, 24	3.35		New Athens.....	16	2.33	
Montgomery.....	23, 24	5.21	9.72				
Mt. Vernon B'ks.....	10	3.01	9.58	<b>Oregon.</b>			
Do.....	23, 24	4.13		Bandon.....	4	2.17	6.82
Auburn.....	23	2.98	9.25	Astoria.....	3, 4	2.40	6.78
Newton.....	17	3.00	9.00				
Greensborough.....	14, 15, 16	3.85	8.94	<b>Pennsylvania.</b>			
Wetumpka.....	11	2.75	8.87	Pittsburg.....	15, 16	2.01	
Do.....	23, 24	4.87					
Marion.....	23, 24	3.30	8.75	<b>South Carolina.</b>			
Mount View.....	5	2.00	8.35	Aiken.....	5	2.10	8.16
Do.....	14, 15	3.15		Charleston.....			6.88
Bolling.....	23, 24	3.32	8.34	Stateburg.....			6.04
Dadeville.....	10	2.25	8.33				
Do.....	23	3.00		<b>Tennessee.</b>			
Jacksonville.....	10	2.12	8.22	Caryville.....	15, 16	4.85	10.08
Do.....	23, 24	2.69		Biddletown.....	15, 16	4.54	9.95
Tuscaloosa.....	10	2.50	7.95	Grassy Cove.....	11, 12	2.20	9.90
Gadsden.....	10	2.15	7.88	Do.....	15, 16	2.20	
Do.....	23, 24	2.00		Fostoria.....	11	2.10	9.46
Prattville.....	10	2.25	7.75	Do.....	14, 15	5.70	
Do.....	23, 24	3.50		Sunbright.....	15, 16	3.95	9.25
Florence.....	11	2.00	7.41	Do.....	24	2.28	
Edwardsville.....	16	2.15	7.33	Somerville.....	5, 6	3.61	8.85
Do.....	24	2.05		Do.....	14, 15, 16	3.92	
Greene Springs.....	14, 15, 10	3.42	7.01	Farmingdale.....	16, 17	3.82	8.73
Do.....	23	2.00		Manchester.....	15, 16	2.38	8.64
Tusculum.....			7.01	Flat Creek.....	15, 16	3.45	8.53
Union Springs.....	23, 24	2.97	6.89	Chattanooga.....	11	2.20	8.49
Centro.....			6.25	Do.....	15, 16	2.33	
<b>Arkansas.</b>				Do.....	23, 24	2.11	
Little Rock.....	14, 15	2.13		Grief.....	12	2.38	7.96
<b>Florida.</b>				Do.....	15, 16	2.05	
Newport.....	20	2.15	8.21	Maryville.....			7.88
Archer.....			8.18	Andersonville.....	15, 16	3.58	7.68
Pensacola.....	23	2.12	8.12	Parkville.....	11	2.45	7.61
Georgetown.....	20, 21	2.33	7.18	Bolivar.....	5	2.90	7.58
<b>Georgia.</b>				Do.....	15, 16	3.08	
Ellerslie.....			12.78	Milan.....	5	3.17	7.50
Cuthbert.....			11.60	Do.....	15, 16	2.17	
Americus.....			10.75	Beech Grove.....	15, 16	2.26	7.24
Carrollton.....			10.45	Trenton.....	5	2.53	6.98
Dalhousie.....			10.13	Do.....	14, 15	2.20	
Gainesville.....			9.25	Kingston Springs.....	6	2.10	6.92
Quitman.....			8.70	McKenzie.....	6	3.30	6.80
Fort Valley.....			8.60	Dickson.....	6	2.28	6.76
Thomson.....			8.50	Do.....	14, 15	2.30	
Atlanta.....	23, 24	2.91	8.44	Memphis.....	5	2.38	6.61
Milledgeville.....	4, 5	2.70	8.37	Do.....	14, 15	2.83	
Do.....	23, 24, 25	3.74		Covington.....	15	2.10	6.60
Columbus.....			8.19	Do.....	24	2.50	
Forsyth.....	5, 6	2.07	7.94	McMinnville.....	15, 16	2.30	6.40
Do.....	16	2.00		Hardison's Mills.....			6.36
Athens.....	23, 24	3.15	7.88	Nashville.....	15, 16	2.10	6.39
Nashville.....			7.75	Howell.....	16	2.89	6.22
Brunswick.....			7.75	Sailor's Rest.....	15	2.10	6.22
Sandersville.....			7.00	Hohenwald.....	16	2.79	6.18
Augusta.....	5, 6	2.64	7.55	Quarter.....	8, 9	2.10	
Do.....	23, 24	3.07		Dresden.....	5	2.40	
Saint Mary's.....			7.37	Dyersburg.....	5	2.24	
Rome.....			7.20	Austin.....	15, 16	2.56	
Savannah.....			6.45				
La Grange.....			6.35	<b>Texas.</b>			
<b>Indiana.</b>				Palestine.....	14, 15	4.75	7.77
Marengo.....			8.10	Galveston.....	15, 16	3.06	6.97
Dana.....			0.00	Indianola.....	3, 4	2.10	6.40
<b>Kentucky.</b>							
Richmond.....	16	2.03	6.54	<b>Vermont.</b>			
Frankfort.....			6.42	Dorset.....	11, 12	2.35	6.26
Louisville.....	15, 16	2.81	6.34				
<b>Louisiana.</b>				<b>Virginia.</b>			
Shreveport.....	14, 15	9.98	12.11	Clarksburg.....	11	2.37	10.67
New Orleans.....	5	2.02	9.70	Do.....	15, 16	4.38	
Do.....	23, 24	4.01		Do.....	22, 23	3.05	
Luling.....	4, 5	2.45	7.83	Lynchburg.....	23	6.00	9.77
Grand Coteau.....	15, 16	3.00	6.91	Chincoteague.....			6.20
<b>Massachusetts.</b>							
Princeton.....	6	2.00	8.75	<b>Washington Ter.</b>			
Do.....	11, 12	3.68		Neah Bay.....	3, 4	2.85	17.70
Williams.....			6.63	Do.....	3, 4	6.15	
Thatcher's Island.....			6.35	Do.....	30, 31	3.55	
New Bedford.....			6.14	Do.....	3, 4	4.62	14.31
<b>Mississippi.</b>				Do.....	3, 4	4.29	
Vicksburg.....	15, 16	3.69	7.69	Do.....	30, 31	2.70	
<b>North Carolina.</b>				Do.....	3, 4	3.10	10.10
Brevard.....	4, 5, 6	2.80	12.90	Bainbridge Isl'd.....	3, 4	4.26	
Do.....	11, 12	2.80		Do.....	5, 6, 7	3.03	8.14
Do.....	23, 24	2.45		Port Angeles.....	3, 4	3.07	
Highlands.....	15, 16	3.00	9.65	Do.....	6, 7		
Kelley's, near Raleigh.....			9.00	Fort Canby.....			6.68
Charlotte.....			8.90	Olympia.....	6, 7	2.10	6.23
Hatteras.....			7.98				
New River Inlet.....	24, 25	2.18	7.25	<b>West Virginia.</b>			
Fort Macon.....			6.34	Helvetia.....	15, 16	2.41	

**North Carolina.**—Wilmington, Smithville, New River Inlet and Fort Macon, 19th; Charlotte and Asheville, 23d; Statesville, 4th, 20th, 23d, 24th; Weldon, 22d, 23d, 24th.

**Ohio.**—North Lewisburg, 15th; Hiram, 15th, 16th; Westerville, Ruggles, Toledo, College Hill and Jacksonburg, 16th; Cincinnati, 16th, 23d.

**Pennsylvania.**—Fallsington, 4th; Leetsdale, 11th; Chambersburg and Pittsburg, 23d; Erie, 16th; Philadelphia and Dyberry, 24th.

**Rhode Island.**—Point Judith, 19th, 20th; Narragansett Pier and Block Island, 28th.

**South Carolina.**—Stateburg, 18th.

**Tennessee.**—Nashville, 5th, 23d; Memphis, 16th; Chattanooga, 20th, 23d.

**Texas.**—Fort Concho, 15th, 21st, 22d; Cleburne, 2d, 15th, 22d; Austin, 20th; Indianola, 16th; Palestine, 20th, 30th; Brownsville, 1st; Fort Stockton, 15th, 20th, 22d; Fort Davis, 22d, El Paso, 15th.

**Virginia.**—Variety Mills, 1st; Marion, 23d, Blacksburg, 21st; Lynchburg, 23d; Fort Myer, 1st, 28th.

**Wisconsin.**—La Crosse, 5th.

#### HAIL.

Hail is reported to have fallen in the following states and territories:

**Alabama.**—Birmingham and Greensboro, 27th.

**Delaware.**—Delaware Breakwater, 1st.

**Illinois.**—Swauwick, 11th.

**Indiana.**—Spiceland, 11th; Vevay, 16th.

**Iowa.**—Guttenberg, 24th.

**Kansas.**—Leavenworth, 4th, 7th, 8th; Wyandotte, 14th.

**Kentucky.**—Richmond, 7th.

**Louisiana.**—Liberty Hill, 16th, 30th; Point Pleasant, 27th.

**Maine.**—Portland, 16th; Cornish, 17th.

**Massachusetts.**—Somerset, 15th, 16th, 28th; Westborough, 16th, 24th; Williamstown and Worcester, 12th; Taunton, 1st.

**Montana.**—Fort Ellis, 7th.

**Nevada.**—Fort McDermitt, 11th.

**New Jersey.**—Atlantic City and Moorestown, 4th.

**New York.**—Le Roy and Factoryville, 16th.

**North Carolina.**—Chapel Hill 23d.

**Ohio.**—Sandusky, 16th; Jacksonburg, 30th.

**Oregon.**—Portland, 1st, 16th.

**Tennessee.**—Milan, 11th; Austin, 12th; Nashville, 12th, 16th, 23d, 25th.

**Texas.**—Fort Davis and El Paso, 15th; Austin, 29th; Cleburne, 2d, 4th, 15th, 22d.

**Utah.**—Nephi, 11th.

**Virginia.**—Fort Myer, 12th; Dale Enterprise, 15th.

**Wisconsin.**—Embarras, 31st.

#### PRECIPITATION FROM CLOUDLESS SKY.

Fort Myer, Virginia, 7th, at 7.15 p. m., when about four-tenths of the sky were covered with clouds, which were along the horizon, there was a light sprinkle of rain, the sky overhead, from which the rain seemed to fall, being perfectly clear.

Detroit, Michigan, 12th, at 7.15 p. m., the sky was clear except a heavy bank of clouds on the northwestern horizon; from that hour until 8.20 p. m., light snow fell in the outskirts of the city to a depth of two-tenths of an inch; the sky during the time above mentioned was of a hazy appearance.

Leetsdale, Pennsylvania, 19th, at 6.20 p. m., snow fell from a cloudless sky for about three minutes; the flakes were small.

Cincinnati, Ohio, 22d, fine snow fell from a cloudless sky from 8.32 to 8.55 a. m.; the quantity was insufficient to whiten the ground.

Sussex, Waukesha county, Wisconsin: on the 20th, snow fell when no clouds were visible at a greater altitude than 10° above the horizon.

#### WINDS.

The most frequent directions of the wind during January, 1885, are shown on chart ii. by arrows flying with the wind.

In the northern districts east of the Rocky mountains they were from southwest to northwest, except in the lower Missouri valley, where they were southerly; in Tennessee, the south Atlantic and Gulf states they were from north to east; at the Rocky mountain stations and on the Pacific coast they were variable.

#### HIGH WINDS.

(In miles per hour.)

During the month of January high winds were reported as follows:

On the summit of Mount Washington, New Hampshire, the wind reached a velocity of fifty miles per hour daily, with the exception of the 16th, on which date the maximum velocity was forty miles from the southeast. Velocities exceeding one hundred miles per hour were as follows: 100, nw., 10th; 110, s., 12th; 102, w., 17th; 101, w., 18th; 110, nw., 22d; 116, nw., 28th; 120, nw., 29th.

The total movement for the month was 36,515, the greatest recorded since the establishment of the station in 1870.

Velocities of fifty or more miles per hour were recorded at other stations, as follows:

Pike's Peak, Colorado, 60, ne., 5th; 80, nw., 6th; 84 nw., 7th; 68, w., 8th; 54, w., 9th; 84, w., 10th; 56, nw., 12th; 88, nw., 16th.

Cape Mendocino, California, 58, s., 1st; 54, s., 4th; 92, s., 6th; 84, s., 7th; 58, se., 9th; 56, s., 10th; 62, se., 16th; 56, s., 28th; 56, s., 29th; 56, s. and se., 30th; 72, s., 31st.

Cape May, New Jersey, 52, w., 17th; 60, nw., 22d; 58, nw., 24th; 60, nw., 26th; 62, nw., 28th.

Sandy Hook, New Jersey, 54, nw., 10th; 68, nw., 17th; 58, nw., 28th.

Buffalo, New York, 71, sw., 17th; 53, nw., 26th.

Rochester, New York, 60, sw., 17th.

Fort Macon, North Carolina, 70, sw., 12th.

Fort Canby, Washington Territory, 62, se., 3d.

#### LOCAL STORMS AND TORNADOES.

Vernon, Lamar county, Alabama: on the 11th a tornado started at a point two miles north of this place; it passed eight miles north of Fayette, Fayette county, and ended near Eldridge, Walker county. The path of the tornado was from one-fourth to one-half mile in width, and its length was about forty miles; it began at about 5 p. m. and moved in a direction slightly north of east; the velocity of the tornado cloud was thirty miles per hour. One person was killed, several were wounded, and many dwellings were destroyed.

Tuskegee, Macon county, Alabama: at 11 p. m., on the 11th, a tornado occurred eleven miles east of this place, and moved east 20° north, its path being 2,640 feet wide. One person was killed, and several houses were destroyed.

Brooksville, Blount county, Alabama: a tornado occurred at this place at 7 p. m., on the 11th; it moved east 20° north, passing four miles southwest of Albertville, Marshall county, and ended four miles west of Collinsville, De Kalb county. The width of the tornado's path was from 600 to 1,690 feet, and its length thirty-five miles. The velocity of the tornado was thirty miles per hour. Three persons were killed and many wounded; sixteen dwellings and numerous outbuildings were destroyed. The damage to property is estimated at \$100,000.

Eutaw, Greene county, Alabama: at 6.30 p. m. on the 11th a tornado began at a point eight miles south of this place; it moved east 20° north, passing three miles north of Sawyersville, Hale county; the same distance north of Randolph, Bibb county; and ended ten miles south of Calera, Shelby county. The width of the tornado's path was from 900 to 1,320 feet and its length seventy miles. The tornado cloud was funnel-shaped and moved at the rate of fifteen miles per hour. Five persons were killed, and many dwellings and other buildings destroyed.

Mount Olive, Coosa county, Alabama: at 9 p. m. on the 11th a tornado occurred five miles north of this place; it moved east 10° north, its path being 2,640 feet in width and twenty miles